Soil Investigation Training Course: Scoping, Boreholes, Testing and Report Review

4 – 8 July 2027
Doha

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Programme Summary

Soil investigation, from scoping and boreholes to testing and report review, is the subject of this one-week training course for project, asset and infrastructure leaders, taught at managerial level and ending in a ground risk review for one project. Foundation and earthworks decisions rest on a thin sample of the ground, yet investigations are often scoped by habit and accepted without challenge. The programme moves from ground risk to scope, field work, testing and report interpretation, using prepared investigation records. Mars Training Centre UK delivers this programme on soil investigation to mixed-organisation cohorts.

The Business Case

A weak investigation leaves surprises in the ground until the contractor finds them, when they arrive as redesign, delay and claims. Leaders who can scope the work to the risk, judge the quality of field and laboratory evidence and read what a report does and does not prove can place money where it reduces uncertainty and carry ground risk into cost and programme decisions.

- Ground Risk: Falls when scope, depth and spacing are matched to the structures and earthworks planned.
- Redesign Cost: Is contained when report limits and assumptions are read before design is frozen.
- Investigation Value: Improves when contractor field work and test results are checked against a set routine.

Principles and Evidence Base

- ISO 22476-3, field testing by standard penetration test: Applied in Sessions 3 and 4 to judge how test results are recorded and used.
- ISO 14688-2, principles for the classification of soil: Applied in Sessions 1 and 3 to read soil descriptions on borehole logs consistently.
- ISO TC 182 geotechnical investigation and testing standards: Applied in Session 2 to frame scope, sampling and reporting expectations in a contract.

Intended Participants

- Project leaders who commission investigations and carry the ground risk in budgets.
- Asset and infrastructure leaders who approve foundation and earthworks designs.
- Contract and procurement leaders who appoint investigation contractors and laboratories.
- Design and engineering leaders who rely on geotechnical reports for decisions.

Typical settings include real estate development, roads and rail, utilities and industrial plant construction.

Learning Outcomes

1. Participants will be able to evaluate ground risk for a planned structure or earthwork and rank it by consequence.
2. Participants will be able to construct an investigation scope with locations, depths and tests tied to that risk.
3. Participants will be able to diagnose weaknesses in borehole logs, sampling records and in situ test results.
4. Participants will be able to compare laboratory test results with the soil descriptions they are meant to support.
5. Participants will be able to prioritise report findings by their effect on design, cost and programme.
6. Participants will be able to justify an investigation decision to a board or client.

Programme Structure

Day 1: Soil Investigation and Ground Risk

What do we need to learn about the ground before we commit?

- Ground Risk Register
- Desk Study Review
- ISO 14688-2 Description Reading
- Ground Model Sketch
- Consequence Ranking Grid

Day 2: Scoping the Investigation

How much investigation is enough for this project?

- Scope Sheet Method
- Location and Depth Rule
- Sampling Plan Template
- Contractor Brief Checklist
- Investigation Budget Model

Day 3: Boreholes and Field Testing

Does the field work record what the ground really holds?

- Borehole Log Review
- Sample Quality Check
- ISO 22476-3 Test Record Reading
- Groundwater Observation Log
- Field Supervision Routine

Day 4: Laboratory Testing and Interpretation

What do the test results prove about strength, stiffness and behaviour?

- Laboratory Schedule Selection
- Result Consistency Check
- Parameter Selection Table
- Data Gap Register
- Interpretation Limits Note

Day 5: Ground Risk Review for One Project

Do the findings join into a review that a board can act on?

- Applying the Session 1 Ground Risk Register
- Testing the Session 2 Scope Sheet
- Checking the Session 3 Borehole Log Review
- Reviewing the Session 4 Data Gap Register
- Completing the Ground Risk Review

Methodology

The programme is a case analysis built on prepared investigation records from a building development and a pipeline corridor. Participants read desk studies, borehole logs, test sheets and a geotechnical report in small groups, challenge the scope and findings, and then defend a ground risk review to peers acting as a project board.

- Suggested activity: Cutting an investigation scope to a budget and stating the risk that remains.
- Suggested activity: Reading a borehole log and finding the missing evidence.
- Suggested activity: Presenting the effect of a report finding on cost and programme.

Capstone Output

Each participant completes a ground risk review for one project. It holds a ground risk register, a scope sheet, a log and test review summary, a data gap register and a list of report findings ranked by effect on design and cost. At work it supports the commissioning decision and becomes the checklist for later investigations.

Frequently Asked Questions

Is soil investigation training suitable for leaders who are not geotechnical engineers?

Yes. Soil investigation is taught through prepared logs, test sheets and templates. You need responsibility for projects, assets, contracts or design decisions, but no earlier training in soil mechanics.

Which standards does soil investigation rest on in this programme?

Soil investigation here rests on ISO 22476-3 for field testing by standard penetration test, ISO 14688-2 for soil classification and the ISO TC 182 body of geotechnical investigation standards, each applied to a scope or report decision.

How is the ground risk review from soil investigation training used at work?

You take the ground risk review to your project board, use its scope sheet when commissioning the next investigation and keep its data gap register as the checklist for reading contractor reports.

How does soil investigation differ from a programme on foundation design?

Soil investigation concentrates on finding, testing and describing the ground and judging the evidence, while a programme on foundation design concentrates on choosing and sizing foundations once that evidence exists.